

FISCAL YEAR 2001 ANNOUNCEMENT

AFOSR BAA 2000-03

**Critical Infrastructure Protection and Information Assurance Science and
Engineering Augmentation Awards for Fellows**

TABLE OF CONTENTS

Part I.	INTRODUCTION
Part II.	PROGRAM PURPOSE
Part III.	PROGRAM DESCRIPTION
Part IV.	ELIGIBILITY & CONDITIONS
Part V.	APPLICATION INSTRUCTIONS
Part VI.	EVALUATION AND SELECTION
Part VII.	DATES
Part VIII.	AWARDS
Part IX.	CONTACT INFORMATION
Appendix A:	LATE SUBMISSIONS AND WITHDRAWS
Appendix B:	PROPOSAL COVER SHEET
Appendix C:	ACKNOWLEDGEMENT RECEIPT

I. INTRODUCTION

The Department of Defense (DoD) announces the Fiscal Year 2001 competition for the Critical Infrastructure Protection (CIP) and Information Assurance (IA) Fellows (CIPIAF) Program, one element of the University Research Initiative (URI). URI is a Department of Defense initiative sponsored by the Office of the Deputy Under Secretary of Defense for Science and Technology (DUSD(S&T)) to enhance universities' capabilities to perform science and engineering research and related education in science and engineering areas critical to national defense. This program will provide grants to institutions of higher education to allow them to increase the number of postdoctoral and faculty scientists and engineers conducting high quality research in Critical Infrastructure Protection and Information Assurance by sponsoring mentor-based Fellows. Concurrently, a separate Broad Agency Announcement (BAA) on Critical Infrastructure Protection and High Confidence, Adaptable Software Research Program is addressing the Department's research needs in these areas.

DoD has been at the forefront of Information Assurance and Critical Infrastructure Protection Research and Development for many years. Information Superiority has been identified as a critical factor in the operational concepts articulated in the DoD planning document Joint Vision 2020.¹ Information assurance and protection of Critical Infrastructure, both within the department and at a national level, are priorities for DoD S&T in support of the overall goal of Information Superiority for the National Defense. This Fellows Program is designed to enhance the CIP and IA R&D communities' capabilities in an area of vital DoD interest.

The President has identified Critical Infrastructure Protection as an area of national priority. Presidential Decision Directive (PDD) 63 sets a policy to assure the continuity and viability of critical infrastructures, to take all necessary measures to swiftly eliminate any significant vulnerabilities to both physical and cyber attacks on our critical infrastructures, especially our networked information systems. The goal is to ensure that any interruptions or manipulations of these critical functions would be brief, infrequent, manageable, geographically isolated and minimally detrimental to the welfare of the United States.²

This overall R&D program includes five primary thrusts in the areas of:

- *Information Assurance* – focusing on the availability, integrity, confidentiality and functionality of critical information infrastructures in a dynamic environment for the national defense;
- *Threat/Vulnerability/Risk Assessments* - focusing on threat, vulnerability, and risk assessments of information and communication (I&C) critical infrastructures to include modeling and simulation, metrics, and testbeds;

¹ <http://www.dtic.mil/jv2020/>

² The White House, WHITE PAPER, *The Clinton Administration's Policy on Critical Infrastructure Protection: Presidential Decision Directive 63*, Washington DC, May 22, 1998.

- *System Protection* - focusing on protection of computer systems, to include approaches such as encryption, public key infrastructures, network security products, reliability and security of computing systems, robust I&C control systems, and secure supervisory control and data acquisition systems;
- *Intrusion Monitoring and Response* - focusing on technologies to detect and provide real time responses to intrusions or infrastructure attacks to include approaches such as network intrusion detection, mobile code and agents, network alarm systems, forensic tools for electronic media, and network defensive technologies, and;
- *Recovery and Reconstitution* - focusing on those technologies required to reconstitute and restore the critical infrastructures in the aftermath of disruptions to include approaches such as risk management studies and tools, system recovery technologies, and consequence analysis tools and supporting technologies.

As described in Section III, DoD is seeking CIPIA Fellows proposals from academic Principal Investigators (PIs) who have a DoD-funded research award related to Information Assurance or Critical Infrastructure Protection. Each CIPIAF award will augment an existing "parent" award by supporting one or more additional postdoctoral or faculty Fellows who would not be supported otherwise by the "parent" award. PIs with successful proposals will be responsible for recruiting, selecting, and hiring of CIPIA Fellows and will serve as their 'mentors.'

Subject to Congressional appropriation of requested funds, DoD expects to fund awards totaling approximately \$4.5M from FY2001 appropriations. Each award will range from approximately \$100,000 to \$1,200,000 depending on the number of Fellows as well as the award duration, qualification of the Fellows and the other expenses. The funds will be awarded via grants through the Air Force Office of Scientific Research, but "parent" awards may be from any DoD activity.

II. PROGRAM PURPOSE

The goal of the DoD Critical Infrastructure Protection and Information Assurance Fellows Program is to enable universities to increase the number of research scientists and engineers in CIP and IA in support of DoD research and development in these fields. The program will provide opportunities for researchers in related fields to enter the specific disciplines mentioned either at the postdoctoral or faculty level. This Fellows Program is intended to attract talented scientists, engineers, and mathematicians whose personal expertise could be applied to CIP and IA research and who are not already directly engaged in CIP/IA R&D, but have an interest in developing an expertise and research career in these fields. To accomplish these goals, the Fellows Program is designed to provide opportunities for training at leading institutions conducting Critical Infrastructure Protection and Information Assurance related research. The Program is structured in a 'mentorship model' that teams Fellows with DoD-awarded Principal

Investigators in the field to enable rapid learning and foster future collaborative research efforts.

National efforts to expand CIP and IA research are critically dependent on the availability of researchers capable of conducting the needed research. In sponsoring this Fellows Program, DoD intends to help both new researchers and established faculty members develop both personal expertise and professional associations that will lead to an expanded science and technology base for the CIP and IA disciplines. The objectives of the program are to provide postdoctoral scientists and engineers of significant research potential with opportunities for study, training, and research on problems of high national priority and growing R&D funding. Recent doctoral graduates will have the opportunity to establish a personal professional presence in the field. Established faculty members not currently working in these fields will have the opportunity to focus and redirect their research efforts in the emerging and growing areas of CIP and IA.

III. PROGRAM DESCRIPTION

The CIPIAF augmentation awards will allow approximately 25-30 faculty and post-docs to be appointed as CIPIA Fellows. For an eight to twenty-four months duration the Fellows will perform full-time study, training, and research in the topic areas with the guidance of a DoD-awarded PI serving as an advisor / mentor. Each CIPIAF augmentation award will be linked directly to a DoD award (in effect on December 1, 2000) related to CIP/IA. Study, training and research by the Fellows may be conducted at the host Universities, DoD laboratories, or not-for-profit institutions within the US. However, the CIPIAF awards will be made only to eligible universities; the Fellows are to be paid by the university. The Fellows' study and research plans may be linked to the recently released CIP/SW URI BAA R&D topics, but this is not a requirement for an award. The CIPIAF augmentation awards are currently planned for FY2001 subject to the appropriation of funding. Continuation of this program will depend on community response and an evaluation of the effectiveness of this initial offering.

The PIs of successful augmentation awards are responsible for recruiting and selecting the Fellows. This may be done either before or after submission of the proposal. However, identification of capable Fellows and demonstration of an ability to conduct the training program are evaluation and selection criteria for the augmentation award.

Training and research by Fellows shall be conducted for a continuous period. The program is not intended for funding 'summer sabbaticals or internships' nor is it intended to fund researchers already engaged in CIP/IA related R&D. Funds for the awards may include salaries, benefits, reasonable overhead expenses, moving expenses, temporary living expenses and limited travel to and from home institution for visiting faculty, travel expenses for conferences, meetings and training, training costs and limited office expenses (to potentially include a workstation but not research equipment). (Note: Federal Government organizations are excluded from receiving these funds).

At the end of the appointment, each Fellow shall submit, through his or her mentor, a final study report. The award periods may begin between February 1, 2001 and September 1, 2001. CIPIAF awards may not be deferred. Major changes in the research plan or Fellows institution require prior approval from DoD.

IV. ELIGIBILITY & CONDITIONS

CIPIAF awards will be eight to twenty-four months in duration. Where the proposed CIPIAF award period exceed the duration of the DoD sponsored award, there must be evidence that the research advisor / mentor and infrastructure support will continue for the duration of the CIPIAF award. It is the responsibility of the university Principal Investigator / Mentor augmentation awardees to recruit, select and hire suitable Fellows for this program. However, the following are criteria for the mentors to use in choosing candidates for the Fellows Program. The Fellows must have an earned Ph.D. or equivalent in science, engineering or mathematics. Faculty Fellows must have a full-time position in research or teaching at an accredited baccalaureate-granting US institution of higher education at the time of application. For any proposed work at DoD laboratories, Fellows must be eligible for access to unclassified government information systems and selection will be conditional on a successful background review and visit authorization to the particular DoD laboratory.

Principal Investigators at institutions of higher education (other than federal government), with degree granting programs in science, mathematics, and/or engineering and who have a DoD (Army, Navy, Air Force, DARPA, or other DoD Agency) research award in place on December 1, 2000 are eligible to compete for CIPIAF augmentation awards. A single CIPIAF augmentation proposal from multiple Principal Investigators (PIs) at a host institution is acceptable as long as each PI has a DoD-sponsored award. Applications for the CIPIAF Fellows program will be accepted from PIs who have applied for a DoD award that will be in effect on December 1, 2000. Proof of acceptance of a pending "parent" award must be received by AFOSR by December 1, 2000.

Current DoD graduate fellowship recipients or Intergovernmental Personnel Act participants are ineligible "parent" awards for this Fellows Program. University award subawardees are eligible if 1) they have a subaward with a duration of one year or more under a DoD prime award, and 2) under that subaward they conduct on-campus research that could involve postdoctoral or faculty Fellows.

Fellows may perform their CIPIAF-supported research and training at an independent nonprofit organization, DoD-sponsored Federally Funded Research and Development Center, or DoD Laboratory as long as the Fellow is appointed by, and the Fellow's training and research is under the oversight of the degree-granting institution that received the CIPIAF award.

Fellows supported by CIPIAF must be U.S. citizens or other nationals³ of the United States whose planned training and research is directly related to CIP/IA and who are in addition to researchers normally accommodated by the parent award.

Proposals are encouraged from Historically Black Colleges and Universities (as determined by the Secretary of Education to meet requirements of 34 CFR Section 608.2) and Minority Institutions [as defined by 10 U.S.C. §2323(a)(1)(c)]. No specific funds are reserved for these institutions, however.

The PIs/Mentors are encouraged to use CIPIAF funding to recruit Fellows from groups underrepresented among U.S. citizens holding Ph.D.s or equivalent in science, mathematics and engineering, including: ethnic minorities [i.e., Black, Hispanic, American Indian, Alaskan Eskimo/Aleut, or American Samoan, Micronesian, Guamanian (Chamorro) and Northern Marianian], women, and persons with disabilities. Increased funding allowances for persons with disabilities will be considered to offset special training expenses.

CIPIAF proposals must be submitted according to the guidance and deadlines described herein. Proposals submitted in whole or in part by electronic media (computer disk or tape, facsimile machine, electronic mail, etc.) will not be accepted. Selections will be based on the criteria outlined in "Evaluation and Selection" section.

V. APPLICATION INSTRUCTIONS

Submission

Submit a proposal signed by appropriate university officials and marked original, along with 10 copies of the signed original (a total of 11 sets of the proposal) to the awarding agency at the address shown below. Proposals must be received at the specified location by **4:00 p.m. Eastern Time on October 3, 2000.**

Proposals must be submitted to:

Air Force Office of Scientific Research
AFOSR/NI
801 North Randolph Street, Suite 732
Arlington, VA 22203-1977

To help assure prompt acknowledgement of the receipt of the CIPIAF proposal, please return the receipt in Appendix C, address it to the Principal Investigator, affix proper postage, and clip to the original copy of the proposal (do not use tape or staple).

³ The term "national of the United States" designates a citizen of the United States or a native resident of a possession of the United States such as American Samoa. It does not refer to a citizen of another country who has applied for U.S. citizenship or to permanent residents of the United States.

Content

The proposal should be signed, complete, and self-contained to qualify for review. To be considered, CIPIAF proposals must identify the existing or anticipated DoD-funded 'parent' award in effect on December 1, 2000. In order for a proposal that cites a parent award not yet in place to be considered and evaluated, the offeror must provide a letter signed by a responsible government officer that the parent award will be in place by December 1, 2000. The technical content of the CIPIAF proposal need not be of the same level of detail as the proposal that resulted in the parent award. Each proposal should be typed, using 10- or 12-pitch font with one-inch margins, stapled and no longer than 20 sheets of paper, all inclusive (including Appendix B cover and signature pages, cost proposal, and all supporting information including Vita). Only the first 20 sheets of each proposal will be considered. Typing is limited to a single side of each sheet. Separate attachments, such as institutional brochures and reprints can render the entire proposal ineligible.

CIPIAF proposals must contain:

1. Cover: To be eligible for consideration, proposals should have Appendix B as the cover, to be included on the original proposal and 10 copies (total of 11 sets of the proposal).
2. Abstract: Provide an abstract of the proposed overall study and research plan for the Fellows, no longer than one page.
3. Text: Provide the following information: 1) Number and duration of CIPIAF post-doctoral and faculty Fellows requested; 2) Description of R&D Area including Goals and Objectives; 3) Training and Research activities in which the CIP/IA Fellow will participate; 4) Curriculum vitae of each mentor/advisor to include lists of publications and courses taught related to CIP/IA; 5) General study/training/research plan for Fellows and 6) (optional) Vita and study plan for each proposed Fellow if already identified or selected. While item 6 is optional it will be used as an evaluation factor in the ability to execute a training plan.
4. Support Continuation: When the duration of the CIPIAF proposal exceeds that of the parent award, provide evidence that the mentor/PI and infrastructure support will continue for the duration of the CIPIAF award.
5. Cost: The financial portion of the proposal must contain a cost estimate that is sufficiently detailed by element of cost for meaningful evaluation. CIPIAF costs should be treated by the host university as they are for post-doctoral or faculty appointments supported by other regular research award from DoD. Remuneration should be sufficient to attract high quality candidates. The proposed period of performance should be eight to twenty-four months. The budget must include total estimated cost and costs for each individual Fellows (both in total and monthly rate) to show the following elements:

a. Stipend/Salary Cost: Include only stipend/salary and benefits costs for Fellows, including monthly rates for each Fellow. Principal Investigator salary costs are not allowable.

b. Tuition, Fees and other Expenses: Tuition costs are allowable only for Fellows taking courses for credit. Moving expenses for relocation to the host institution are allowable as well as travel expenses at the beginning and end of the award period. Reasonable living expenses and limited travel to and from their home institutions are allowable for visiting faculty.

c. Research Training Cost: Appropriate costs would include CIPIAF costs for 1) expenses directly related to the Fellow's training and research (e.g., computer time; workstation costs); 2) publication and report costs; and 3) travel costs (must be justified and limited to Fellows' travel only). Funds will not be provided to purchase research instrumentation.

d. Overhead rates: Standard overhead rates apply (e.g., this is not applicable to tuition and fee costs).

VI. EVALUATION AND SELECTION

A DoD review panel will competitively evaluate the CIPIAF Program proposals.

The primary evaluation criterion will be:

- Potential for contribution to the training of new researchers in the areas of Critical Infrastructure Protection and Information Assurance.

Other evaluation criteria, which are of lesser importance than the primary criterion and of equal importance to each other, will be:

- Qualifications, capabilities, past research accomplishments and experience of the DoD Principal Investigator;
- Soundness and quality of study and research plan for postdoctoral and faculty Fellows;
- Qualifications, capabilities, past research accomplishments and experience of the CIP/IA Fellows, if already selected prior to application;
- Prospects for continued research in the field by the Fellows;
- Prospects for identification and selection of qualified Fellows and demonstrated ability to execute the training program;
- Evidence that the research advisor/ mentor and research infrastructure support will be available to the Fellows recipients for the duration of the CIPIAF award;
- Realism and reasonableness of the costs and availability of funds.

VII. DATES

Proposals in the quantity and format described herein must be received by the AFOSR (same as identified in Section IX, below) **by 4:00 p.m. Eastern Time on Tuesday October 3, 2000**. Proposals received after the designated time will be handled in accordance with the provisions set forth in Appendix A of this BAA on Late Submissions, Modifications, and Withdrawals of Proposals. These provisions are consistent with the Federal Acquisition Regulation. CIPIAF proposals must be linked to a DoD funded research award in effect December 1, 2000. Acknowledgement of receipt of a CIPIAF proposal will be accomplished via the receipt at Appendix C. No separate acknowledgement will be provided. Decisions will be announced on or about December 15, 2000 via letters to applicants. Awards are expected to begin from February 1, 2001 to September 1, 2001.

Key Dates:

Proposal Due Date	3 October 2000
Effective Date of Linked DoD Award	1 December 2000
Award Announcement Date	15 December 2000
Award Start Dates	1 February 2001 to 1 September 2001

VIII. AWARDS

Subject to Congressional appropriations and the availability of funds, DoD will fund the entire cost of the awards from FY 2001 appropriations in the approximate amount of \$4.5 million. The awards will be made via grants. Negotiations may result in funding levels less than originally proposed.

IX. CONTACT INFORMATION

The central points of contact for application and program information concerning this BAA is:

Air Force Office of Scientific Research
AFOSR/NI
801 North Randolph Street, Suite 732
Arlington, VA 22203-1977
Contacts: Dr. Victoria Franques, (703) 696-7313,
Victoria.franques@afosr.af.mil
Dr. Spencer Wu, (703) 696-7315,
Spencer.Wu@afosr.af.mil

Current PI's are encouraged to discuss this program with their current Service or Agency Program Managers. For additional information on DoD Critical Infrastructure Protection S&T contact:

Dr. Steven King
Information Systems Directorate
Office of the Deputy Under Secretary of Defense (Science and Technology)
1777 N. Kent St, Suite 9030
Arlington, VA 22209
703-588-7414
kingse@acq.osd.mil

APPENDIX A: LATE SUBMISSIONS AND WITHDRAWALS OF PROPOSALS

(a) Any proposal received at the Government office designated in the solicitation after the exact time specified for receipt of proposals is "late" and will not be considered unless there is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government's control prior to the time set for receipt of proposals.

(b) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(c) If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the office designated for receipt of proposals by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(d) Proposals may be withdrawn by written notice received at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.

Submitted to FY 2001
CIP/IA Augmentation Awards for Fellows BAA

APPENDIX B: PROPOSAL COVER

(Both Pages of This Form Must be Completed and Submitted with the Proposal)

Proposal Number: _____
(To Be Completed by DoD only)

1. The Principal Investigator:

(Title) (First Name) (MI) (Last Name) (Phone Number + Area Code)

(University) (Email address)

(Department)

(Street/P.O. Box)

(City) (State) (Zip Code)

2. Current DoD Award ___or Pending Proposal ___: (please check)

(DoD Agency Which Made the Award/Is Considering Proposal) (Agency Award Number)

(Title of "Parent" Award or Proposal)

(DoD Agency's Technical Point of Contact) (POC Phone Number / Email)

3. CIP/IA Fellows Proposal:

(Title of CIP/IA Fellows Proposal)

(Total Funds Requested Postdoctoral | Faculty/# of Positions)

Proposed Start Date Proposed End Date

4. The Institution: (Signature and typed name and address of university official authorized to obligate contractually)

(Signature) (Date)

(Title) (First Name) (MI) (Last Name)(Phone Number and Fax number)

(Legal Name of Grantee -- University)

(Street Address -- P.O. Box Numbers Can Not Be Accepted)

(City) (State) (Zip Code)

CERTIFICATIONS: By signing and submitting this proposal, the proposer is providing the certification at Appendix A to 32 CFR Part 25 regarding debarment, suspension, and other matters; the certification at Appendix C to 32 CFR Part 25 regarding drug-free workplace; and the certification at Appendix A to 32 CFR Part 28 regarding lobbying.

5. Certifications by Other University Officials: Use this space for names, titles, and signatures of other officials approving the submission of this proposal (e.g., the Principal Investigator and Department Head, Dean or other officials). A separate sheet may be submitted if additional signatures are required. Recall that all sheets must render the proposal no more than 20 pages in length.

We hereby certify that the above information is, to the best of our knowledge correct.

(Principal Investigator) Typed Name (Date)

(Other Official) Typed Name (Date)

(Other Official) Typed Name (Date)

DUNS + 4 No.¹ _____

¹ The institution's number in the data universal numbering system or DUNS+4 is a unique 13-character identification number for organizations and subsidiaries. Dun & Bradstreet Corporation assigns these numbers. You can receive a DUNS+4 number by calling Dun & Bradstreet at 1(800) 333-0505 or go to the Dun & Bradstreet Web site at <http://www.dnb.com/dunsno/list.htm>. To facilitate payment under any award the institution should be registered in the Central Contract Registry (CCR). CCR uses the DUNS+4 as a unique identifier for each organization. Information on registering in the CCR may be found at <http://www.ccr2000.com> or 1(888) 227-2423.

APPENDIX C: ACKNOWLEDGEMENT RECEIPT

From:

Affix
Proper
Postage

To:

Fold on this line - DoD will complete the portion below.

Date: _____

Dear Proposer:

Your CIP/IA Fellows proposal has been received at:

The Air Force Office of Scientific Research

and will be evaluated, Control Number _____

_____ will not be evaluated for the following reason(s):